VEGETABLE CROPS CALENDAR

COMMERCIAL VEGETABLES
New Teaching Program for Horticulture
Triploid (Seedless) Watermelon Variety Trial Results
Spring 1998, NFREC, Quincy, FL

VEGETABLE CROPS ON THE INTERNET
Producing Strawberries With Outdoor Soilless/hydroponic Systems

VEGETABLE GARDENING
Heirloom Tomato Varieties for Florida

Note: Anyone is free to use the information in this newsletter. Whenever possible, please give credit to the authors. The purpose of trade names in this publication is solely for the purpose of providing information and does not necessarily constitute a recommendation of the product.
Vegetable Crops Calendar


Commercial Vegetables

New Teaching Program for Horticulture

A new educational resource for vegetable producers, and others, is available at the Indian River Research and Education Center in Fort Pierce. Seven new faculty members have been hired to provide the upper division classes necessary for a Bachelor's Degree in Horticulture or Agribusiness Management. Horticulture students can major in General Horticulture or Fruit and Vegetable Science. Mark Ritenour's area of specialization is postharvest handling of produce and he is responsible for the postharvest and physiology classes. Betsy Lamb is trained in vegetable production and will teach the General Horticulture class as well as the vegetable production classes. Sandi Wilson from Clemson will cover classes in Environmental Horticulture and Buddy Tignor, who received his PhD from the University of Florida in Citrus Management, will teach the fruit production courses. In Agribusiness Management, Ferd Wirth covers the area of marketing and finance, Suzanne Thornsbury is responsible for Food systems policy and Trade, and Mark Wade will teach in the area of Marketing. Still to be filled is the position in Labor Regulation. In order to keep all the teaching faculty up to the minute in their areas of specialization, all have a 30% appointment in January 1999 and 70% Teaching appointment. Ron Sonoda and Bob Bullock volunteered their time to teach Plant Pathology and Entomology last semester and George Snyder will teach Soils on interactive video from the Fort Lauderdale Research and Education Center. Certain classes, such as Genetics, will be taught at Florida Atlantic University. In addition to providing classes for the undergraduate program, Fort Pierce is one of the base sites for the new Distance Master's Degrees in Agribusiness and Agricultural Education and Communication.

Facilities at IRREC include 2 classrooms with the potential for sending and receiving classes by interactive video, a well-equipped teaching lab and a computer center for student use. Two new greenhouses and 2 shade houses are in the bidding process and planting of trees for a teaching variety collection of citrus and other temperate and tropical fruits has begun. Land preparation for the vegetable, herb and ornamental plantings is due to start in January. Within 2 years, a new teaching building with additional classrooms and labs, a library, student lounge and faculty offices will be completed. Support staff have been or will be hired to assist faculty in the areas of educational media, computer sciences, teaching assistance and statistical analysis.

Classes are available for students in degree programs and also for those interested in increasing their knowledge in a particular area without completing an entire degree. Fall 1998 was the first semester of the new program and 25 undergraduates and 12 graduate students were registered in 6 classes. The "average" student was 35, not enrolled in a degree program, and working in an agricultural industry, primarily vegetable and citrus production, but students ranged from High School seniors working on internships to Seniors completing their class requirements to retirees learning about dooryard citrus. For students wishing to complete a bachelor's degree, 2+2 programs with area community colleges, notably Indian River Community College, are being developed so students can move easily into the upper division classes with a completed AA degree. Scholarships are available through IFAS in Gainesville, but additional sources of funding are being sought to accommodate students who do not fulfill the "traditional" requirements of a full-time student.
In Spring 1999, 14 classes are available; 7 in the area of Horticulture, 4 in Agribusiness Management and 3 graduate distance education courses. Horticulture classes include Plant Propagation, Soils, General Horticulture and Horticultural Physiology. Agribusiness classes include Principles of Food and Resource Economics, Principles of Agribusiness Management, and Human Resource Management. Additional information on the program is available at http://www.irrec.ifas.ufl.edu or from the Center at (561) 468-3922.

(Lamb, Vegetarian 99-01)

Triploid (Seedless) Watermelon Variety Trial Results Spring 1998, NFREC, Quincy, FL

Watermelons ranked 8th in value ($55 million) and 4th in acreage (30,000) for the 1996-97 production season among the vegetables (strawberries included) produced in Florida. At present triploid watermelons represent only a small market in Florida (estimated to be about 20%). In other areas such as California and winter production in Mexico they have become the predominant type. If it was not for the need for a standard melon to supply the pollen needed for fruit set, triploid melons would have even a larger market share in these areas. There is not any reason that Florida growers can not increase their acreage of triploid melons since the market seems to be there. The growers in Florida that have tried triploid melons have been pleased with them and plan to continue. Many trials have shown the adaptability of triploid watermelons and shown that yields from triploids are equal to standard types and in many cases will exceed those of standard types.

This trial was part of a statewide trial to evaluate varieties at multiple locations. The purpose of this trial was to evaluate triploid varieties for adaptability to the Panhandle area of the state.

Soil type was an Orangeburg loamy fine sand. Soil pH before planting was 6.7. Total fertilizer applied was 150-45-150 lb/a of N-P$_2$O$_5$-K$_2$O. As the black polyethylene mulch was applied, the beds were fumigated with methyl bromide:chloropicrin (98:2) at 400 lbs per tape (Chapin Twin Wall IV, 0.5 gpa/min at 10 psi) buried 6 inches from center of bed. Between row spacing was 8 feet and in row spacing was 3 feet. Plots consisted of 10 plants with a 2 plant border between plots of a dissimilar variety (Mickylee was used).

Seed of twenty entries were planted on 17 February 1998 into flats with cell size of 1.5 in. X 1.5 in X 2.5 in. Plots were planted on 30 March 1998. Four replications were used. Pollinators were provided both on outside of plots and in-row. Between row weed control was used (both contact and preemergence herbicides). Pesticides were applied as need to control pests.

Watermelons were harvested on 8-9 June and 18 June. Marketable fruit were counted and weighed individually. Yields were calculated as if the field was solid triploid watermelons. Soluble solids determinations were made with a digital refractometer on two fruit of each entry at first harvest. Ratings were also made for hollow heart and presence of hard seed. The resulting data were subjected to analysis of variance and means were separated by Duncan’s multiple range test, 5% level. Temperatures during May and June were above normal and very dry and may have affected yields. Disease pressure was very low due to the dry conditions but spider mites were somewhat a problem.

Total yields (Table 1) varied from a high of 556.5 cwt/a for ‘Millionaire’ to a low of 399.8 cwt/a for ‘Freedom’. Yields of all entries except ‘HSR 1599’ and ‘Freedom’ were similar to ‘Millionaire’. ‘Millionaire’ in past trials has also provided very high yields. Average fruit size ranged from 15.8 lbs for ‘HSR 1599’ to 10.2 lbs for ‘HMX 6910’. Only ‘FS 4502’ had fruit size similar to ‘HSR 1599’. Hollow heart ranged from a high of 4.25 for ‘HSR 1599’ (unacceptable) to none present in ‘Millionaire’ and ‘Tri-X-Palomar’. ‘Tri-X-313’ also had almost none present. An average rating above 3 would make the entry questionable as to marketability. Some hard seed were found in all of the entries but seemed to be only a problem with ‘HMX 6910’. Soluble solids ranged from a high of 13.8 for ‘Tri-X-Carousel’ to a low of 12.0 for ‘HMX 6910’. Ten other entries had soluble solid levels equal to ‘Tri-X-Carousel’.
Table 1. Total yields, average fruit weight, hollow heart rating, hard seed rating and soluble solid content of triploid watermelons. NFREC, Quincy. Spring 1998.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Source</th>
<th>Yield (Cwt/A)</th>
<th>Average Fruit Wt. (lb)</th>
<th>Hollow Heart Rating(^x)</th>
<th>Hard Seed Rating(^y)</th>
<th>Soluble Solids (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millionaire</td>
<td>Harris-Moran</td>
<td>556.5 a(^x)</td>
<td>12.3 bc</td>
<td>0.00 g</td>
<td>2.50 bc</td>
<td>12.1 de</td>
</tr>
<tr>
<td>95-14</td>
<td>Sakata</td>
<td>549.5 a</td>
<td>13.7 ab</td>
<td>2.62 a-f</td>
<td>2.25 bc</td>
<td>13.2 a-d</td>
</tr>
<tr>
<td>Gem-Dandy</td>
<td>Willhite</td>
<td>534.7 ab</td>
<td>12.0 b</td>
<td>0.87 e-g</td>
<td>2.12 bc</td>
<td>12.5 c-e</td>
</tr>
<tr>
<td>Crimson-Trio</td>
<td>Rogers</td>
<td>533.2 ab</td>
<td>12.6 b</td>
<td>2.75 a-e</td>
<td>3.00 ab</td>
<td>12.4 c-e</td>
</tr>
<tr>
<td>HMX 6910</td>
<td>Harris-Moran</td>
<td>532.4 ab</td>
<td>10.2 c</td>
<td>2.75 a-e</td>
<td>3.87 a</td>
<td>12.0 e</td>
</tr>
<tr>
<td>Constitution</td>
<td>Sunseeds</td>
<td>531.9 ab</td>
<td>12.0 c</td>
<td>1.25 d-g</td>
<td>2.50 bc</td>
<td>12.9 a-e</td>
</tr>
<tr>
<td>HMX 7928</td>
<td>Harris-Moran</td>
<td>530.5 ab</td>
<td>11.7 b</td>
<td>0.87 e-g</td>
<td>2.38 bc</td>
<td>13.2 a-c</td>
</tr>
<tr>
<td>Tri-X-Palomar</td>
<td>American Sunmelon</td>
<td>511.2 a-c</td>
<td>11.4 bc</td>
<td>0.00 g</td>
<td>2.50 bc</td>
<td>12.6 b-e</td>
</tr>
<tr>
<td>Tri-X-Shadow</td>
<td>American Sunmelon</td>
<td>510.7 a-c</td>
<td>11.5 bc</td>
<td>0.50 f-g</td>
<td>2.12 bc</td>
<td>13.3 a-c</td>
</tr>
<tr>
<td>XWM-7703</td>
<td>Sakata</td>
<td>489.1 a-c</td>
<td>12.6 b</td>
<td>3.75 ab</td>
<td>2.37 bc</td>
<td>12.7 b-e</td>
</tr>
<tr>
<td>Tri-X-Carousel</td>
<td>American Sunmelon</td>
<td>482.1 a-c</td>
<td>12.8 bc</td>
<td>1.12 d-g</td>
<td>1.75 bc</td>
<td>13.8 a</td>
</tr>
<tr>
<td>Tri-X-313</td>
<td>American Sunmelon</td>
<td>475.9 a-c</td>
<td>13.0 b</td>
<td>0.01 g</td>
<td>2.25 bc</td>
<td>12.5 c-e</td>
</tr>
<tr>
<td>RWM 8073</td>
<td>Novartis</td>
<td>467.2 a-c</td>
<td>12.2 bc</td>
<td>1.87 b-g</td>
<td>1.75 bc</td>
<td>13.0 a-e</td>
</tr>
<tr>
<td>95-11</td>
<td>Sakata</td>
<td>455.3 a-c</td>
<td>12.5 bc</td>
<td>3.12 a-d</td>
<td>3.12 ab</td>
<td>12.8 a-e</td>
</tr>
<tr>
<td>FS 4502</td>
<td>Florida Seed</td>
<td>453.4 a-c</td>
<td>13.6 ab</td>
<td>1.75 b-g</td>
<td>2.62 bc</td>
<td>12.9 a-e</td>
</tr>
<tr>
<td>Genesis</td>
<td>Shamrock</td>
<td>445.2 a-c</td>
<td>11.3 bc</td>
<td>2.12 a-g</td>
<td>2.25 bc</td>
<td>13.1 a-e</td>
</tr>
<tr>
<td>Sapphire</td>
<td>Hollar</td>
<td>444.1 a-c</td>
<td>13.2 b</td>
<td>3.50 a-c</td>
<td>2.25 bc</td>
<td>13.6 ab</td>
</tr>
<tr>
<td>Revolution</td>
<td>Sunseeds</td>
<td>443.3 a-c</td>
<td>11.2 b</td>
<td>0.75 e-g</td>
<td>2.00 bc</td>
<td>13.2 a-d</td>
</tr>
<tr>
<td>HSR 1599</td>
<td>Hollar</td>
<td>420.8 bc</td>
<td>15.8 a</td>
<td>4.25 a</td>
<td>1.50 c</td>
<td>12.7 b-e</td>
</tr>
<tr>
<td>Freedom</td>
<td>Sunseeds</td>
<td>399.8 c</td>
<td>12.9 b</td>
<td>1.50 c-g</td>
<td>2.37 bc</td>
<td>13.3 a-c</td>
</tr>
</tbody>
</table>

\(^{x}\)Hollow heart rating on a 0-5 scale; 0=no hollow heart, 5=over 20mm separation.

\(^{y}\)Hard seed rating on a 1-5 scale; 1=no hard seed, 5=more than 5 hard seed.

\(^{x}\)Mean separation by Duncan's multiple range test, 5% level.

(Olson, Vegetarian 99-01)

**Vegetable Crops on the Internet**

The Internet has become a dynamic encyclopedia of information open to anyone who knows how to access it. With the growing number of web sites containing information useful to the vegetable industry, the incentive is greater than ever for its members to go on-line. One can find information on nearly everything from scientific reports, to weather reports & forecasts, to company products and how to purchase on-line. Benefits of using the internet include:

- Access in information 24 hours a day
- Sites often contain links to other related web sites
- Searchable indices of information
- Quick access to the most current information
- Direct e-mail links to people
- Online discussion groups to share ideas about a particular topic

A good way to find information on the internet is by using a web search engine such as Alta Vista (www.altavista.com), HotBot (www.hotbot.com), Excite (www.excite.com) or Yahoo (www.yahoo.com). Newer web 'crawlers' such as MetaCrawler (http://www.go2net.com/search.html) and Webcrawler (www.webcrawler.com) have become popular because they pool the resources of several different search engines. After a useful web site has been found that includes links to similar web sites, further information on that topic can be quickly found by following the links. Following is a list of web sites that contain useful information related to horticulture and vegetable crops in particular. Most of these sites have
additional links to related sites that can provide further information.

Background Plant Science Information:
- Agricultural Web Sites - http://taipan.nmsu.edu/agh/oth_ag.html
- Name That Crop (identification of exotic crops) - http://www.aphis.usda.gov/ba/commodities/cc.html

University Online Publications:
- UF Extension Digital Information Source (EDIS) - http://edis.ifas.ufl.edu/
- Washington State University WSU CAHE Information Department - http://www.caheinfo.wsu.edu/

Crop Statistics:
- Food and Agriculture Organization (FAO) - http://www.fao.org/

Weather:
- Florida Automated Weather Network - http://fawn.ifas.ufl.edu/
- The Weather Channel - www.weather.com
- Intellicast - http://www.intellicast.com/

Horticulture/Vegetable Related Links:
- University of California Vegetable Research & Information Center - http://vrchome.ucdavis.edu/aboutveg/about.HTM
- North Carolina State University Horticulture Information Leaflets - http://www.ncsu.edu/ncsucg/extension/postharv/leaflets.html

Postharvest:
- Handling Techniques for Maintaining Postharvest Quality of Vegetables - http://hammock.ifas.ufl.edu/tsl/fairs/53556
- University of California Postharvest Outreach Program - http://hostharvest.ucdavis.edu/
- FDA Center for Food Safety & Applied Nutrition - http://vm.cfsan.fda.gov/
- Transportation Hot Links - http://www.truck.net/hotlinks.html

Marketing:
- AgriGator - Agricultural and Related Information Market News - http://www.ifas.ufl.edu/WWW/AGATOR/HTM/AGMARKET.HTM
- Florida Department of Agriculture - http://www.flag.com/ (Ritenour, Vegetarian 99-01)

Producing Strawberries With Outdoor Soilless/Hydroponic Systems

Strawberry is a very important crop in the nation but has special importance to those growers producing strawberries for local sale, farmers markets, or for road-side markets. In southern regions of the US, the annual-hill production system is common where strawberries are grown as an annual crop with polyethylene mulch and drip irrigation. Often methyl bromide is used to disinfect the soil of disease organisms, insects, and weed seeds. Methyl bromide is scheduled to be phased out of use by the year 2005. The popularity and value of strawberries and the pending challenge to strawberry culture with the loss of methyl bromide, led a group of
as a culture system for strawberries. This group, led by Bob Hochmuth, includes fruit crops specialist Tim Crocker, county agent David Dinkins, biologist Lei Lani Leon and vegetable crops specialist George Hochmuth.

Strawberries have been grown in various media systems with all nutrients supplied from nutrient solution or from controlled-release fertilizer materials. Strawberry plug plants were placed in layflat bags filled with various media and irrigated with a microirrigation system with an emitter stake at each plant. Each three-foot long bag contained about 0.5 cubic ft. of media and 6 strawberry plants. Results of some of these tests are presented in Table 1.

These hydroponics systems are applicable for both small farms growing for local sales or for larger growers. Yield with the hydroponic systems in northern Florida (4 month harvest season) was as great as 1.8 pounds per plant. The hydroponic system arrangement resulted in about 40,000 plants per acre whereas the typical soil-based system used on commercial farms today results in one-half as many plants.

Small farmers can easily manage a hydroponic system for production of strawberries for local sales. Organic culture of strawberries is possible with this system where media such as perlite is approved for use in organic culture. Larger-scale production appears to have potential also, mainly due to the high plant populations and large production capability. The combination of soilless culture of strawberries with greenhouses or other protective structures also is possible and currently being used on small scale around the country. Many options for culture systems are being developed. Most rely on some type of soilless media including perlite, peat, vermiculite, coconut coir, or others, alone or in various mixes. Without mentioning brand names, the cultural systems include layflat bags, upright bags, stacked (columns) of styrofoam containers, horizontal PVC pipes filled with media, or horizontal PVC pipes with strawberry plants in plastic pots inserted in the PVC pipes. There are numerous variations on the cultural scheme and every one we have evaluated can be used successfully to produce strawberries.

Table 1. Comparison of yield with several cultural systems, University of Florida Suwannee Valley Research and Education Center, Live Oak, FL.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Media</th>
<th>Yield (lb/plant)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1996</td>
<td></td>
</tr>
<tr>
<td>Camarosa</td>
<td>Perlite</td>
<td>1.8</td>
</tr>
<tr>
<td>Chandler</td>
<td>Perlite</td>
<td>1.6</td>
</tr>
<tr>
<td>Sweet Charlie</td>
<td>Perlite</td>
<td>1.1</td>
</tr>
<tr>
<td>Sweet Charlie</td>
<td>Peat/vermiculite</td>
<td>1.0</td>
</tr>
<tr>
<td>Sweet Charlie</td>
<td>wood fibers</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td></td>
</tr>
<tr>
<td>Camarosa</td>
<td>Perlite</td>
<td>0.9</td>
</tr>
<tr>
<td>Camarosa</td>
<td>Peat/vermiculite</td>
<td>1.0</td>
</tr>
<tr>
<td>Camarosa</td>
<td>Perlite/controlled-release</td>
<td>0.9</td>
</tr>
<tr>
<td>Camarosa</td>
<td>Perlite/fertigation</td>
<td>0.9</td>
</tr>
</tbody>
</table>

(Hochmuth, vegetarian 99-01)
Vegetable Gardening

Heirloom Tomato Varieties for Florida

Heirloom varieties are those grown years ago by our grandparents and their ancestors. As such, these varieties represent our gardening heritage. Most records of early vegetable varieties start in the first part of this century.


Since the tomato is our most popular garden vegetable, this article will concentrate on tomatoes. There are too many other vegetables to mention all of them now. I will list all those that were included in the above stated publications. But the most important section will be the listing of tomato varieties kept by the Seed Savers Exchange and advertised for sale in their Autumn 1998 Heirloom Seeds catalog.

The Seed Savers Exchange (SSE) is a non-profit organization of 8,000 members who grow and sell heirloom (handed-down) varieties. SSE has a farm, fittingly called “Heritage Farm”, located in Decorah, Iowa, where 18,000 varieties of endangered vegetables, including 4,100 tomatoes are maintained. Up to 2,000 are multiplied for seed each summer. For more information on that farm and organization, you can write to Kent and Diane Whealy, Seed Savers Exchange, 3076 North Winn Rd., Decorah, IA 52101, or call (319) 382-5990.

The following are the listings recorded in the publications which I have mentioned. This listing is not to be construed as a recommendation for their growth in Florida, except for trial purposes. Our current recommended varieties list may be found in Circular SP 103, Florida Vegetable Gardening Guide. For more reading of lists of heirloom tomato varieties, check out the book, Livingston and the Tomato (1893).

- Heirloom tomato varieties. The Vegetable Garden 1905.
  - Large Red Tomato, Powell’s Early, Early Dwarf Red, Tree Tomato, Belle of Massy, Laxton’s Open-air, Atlantic Prize, Marvel of the Market, chemin Red, Purple Champion, Scarlet Champion, Perfection, Trophy, Mikado Purple, Mikado Scarlet, Scarlet Ponderosa, golden Queen, Apple-shaped Red, Hathaway’s Excelsior, Apple-shaped Purple, Acme, King Humbert, Pear-shaped or Fig cherry, red Currant, Beauty, Belle de Leuville, Blenheim Orange, Earliana, Early Mayflower, Early Optimus, Golden Trophy, Honor Bright, Jaune Petite, Large Yellow, Peach, scarlet Turk’s Cap, Stone, Yellow Pear Shaped, Vilmorin’s Dwarf
  - Tomato varieties listed in Home Gardening in the South. 1918
  - Earliana, Chalk’s Early Jewel, Greater Baltimore, Red Rock, Globe, Beauty, Acme, Stone
  - Tomato varieties for Florida in Vegetable Crops of Florida. 1930.
  - Marglobe, Livingston Globe, Stone, Ponderosa, June Pink, Earliana
  - Marglobe, Livingston’s Globe, Pritchard’s Scarlet Topper
  - Tomato varieties for Florida in Planting Charts for Home Gardens. Cir. 65, 1943
  - Pan America, Marglobe
  - Tomato varieties for Florida in The Florida Home Garden, Bul.131. 1946.
  - Pan America, Marglobe, Rutgers
  - Amber-colored Russian, Amish Paste, anna Russian, Aunt ruby’s German Green, Big Rainbow, Black Tula Russian, Black Plum, Black Sea Man, Brandywine, Broad Ripple, Yellow Currant, Cherokee Purple, Druzbau Bulgarian, Eurofresh, Federic, ganti Hungarian, German Pink, Gourmet Yellow Stuffer, Green Zebra, Grandpa Cock’s Plume, Hugh’s, Hungarian Heart, Lisa King, Moonglow, Marizol...
Nebraska Wedding, Opalka, Orange Banana, Plum Lemon Productiva, Riesentraube, Russian Persimmon, Silvery Fir Tree, Soldacki Polish, Spitze, Striped Cavern, Tommy Toe, Tyboroski Plum, You-Go
-Heirloom tomato varieties listed by Garden Seed Inventory, 1995.
Banana Legs, Garden Peach, Golden Queen, Goldie, Mammoth German Gold, Yellow Pear, Golden Ponderosa, Yellow Belgium, Yellow Bell, Arkansas Traveler, Watermelon Beefsteak, Pink Brimmer, Brandywine, Bull’s Heart, Cherokee Purple, Dutchman, Eva Purple Ball, German Johnson, Jeff Davis, Jefferson Giant, Marizol Purple, Mortgage Lifter, Radiator Charlie’s, Oxheart, Pomme d’Amour, Ponderosa, Purple Calabash, Sochulak, Tappy’s Finest, Winsall, Abe Lincoln, Ailsa Craig, Bonny Best, Burbank, Wickline Cherry, Crimson Cushion, Dinner Plate, Dominick’s Paste, Dwarf Champion Tree Tomato, Earlana, German, Goliath, Grandma Mary’s Paste, Howard German, John Baer, Landry’s Russian, Marglobe, Marmande, Moneymaker, Red Cup Stuffing, Riesentraube, Rutgers, Scarlet Heirloom, Stone, Sugar Lump, Swiss Alpine, The Amateur, Valiant, Ziegler’s Fleisch. Big Rainbow, Dad’s Mug, Elberta Girl, Great White, Hillbilly, Mr. Stripey, White Beauty.

(Stephens, Vegetarian 99-01)